

# SEQUENCE LISTING

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<120> METHODS AND MATERIALS FOR EXAMINING  
PATHWAYS ASSOCIATED WITH GLIOBLASTOMA PROGRESSION

<130> G&C 30435.148USU1

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<170> FastSEQ for Windows Version 4.0

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<211> 249

<212> PRT

<213> Homo Sapiens

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Ala Thr Glu Val Ala Ala Asp Ala Leu Gly Glu Glu Trp Lys Gly Tyr
 35           40           45
Val Val Arg Ile Ser Gly Gly Asn Asp Lys Gln Gly Phe Pro Met Lys
 50           55           60
Gln Gly Val Leu Thr His Gly Arg Val Arg Leu Leu Leu Ser Lys Gly
 65           70           75           80
His Ser Cys Tyr Arg Pro Arg Arg Thr Gly Glu Arg Lys Arg Lys Ser
 85           90           95
Val Arg Gly Cys Ile Val Asp Ala Asn Leu Ser Val Leu Asn Leu Val
 100          105          110
Ile Val Lys Lys Gly Glu Lys Asp Ile Pro Gly Leu Thr Asp Thr Thr
 115          120          125
Val Pro Arg Arg Leu Gly Pro Lys Arg Ala Ser Arg Ile Arg Lys Leu
 130          135          140
Phe Asn Leu Ser Lys Glu Asp Asp Val Arg Gln Tyr Val Val Arg Lys
 145          150          155          160
Pro Leu Asn Lys Glu Gly Lys Lys Pro Arg Thr Lys Ala Pro Lys Ile
 165          170          175
Gln Arg Leu Val Thr Pro Arg Val Leu Gln His Lys Arg Arg Arg Ile
 180          185          190
Ala Leu Lys Lys Gln Arg Thr Lys Lys Asn Lys Glu Glu Ala Ala Glu
 195          200          205
Tyr Ala Lys Leu Leu Ala Lys Arg Met Lys Glu Ala Lys Glu Lys Arg
 210          215          220
Gln Glu Gln Ile Ala Lys Arg Arg Arg Leu Ser Ser Leu Arg Ala Ser
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Thr Ser Lys Ser Glu Ser Ser Gln Lys
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<213> Homo Sapiens

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		20						25					30		
Asn	Glu	Glu	Thr	Arg	Ala	Lys	Ala	Ala	Lys	Glu	Leu	Gln	His	Tyr	Val
		35					40					45			
Thr	Met	Glu	Leu	Arg	Glu	Met	Ser	Gln	Glu	Glu	Ser	Thr	Arg	Phe	Tyr
	50					55					60				
Asp	Gln	Leu	Asn	His	His	Ile	Phe	Glu	Leu	Val	Ser	Ser	Ser	Asp	Ala
65				70					75					80	
Asn	Glu	Arg	Lys	Gly	Gly	Ile	Leu	Ala	Ile	Ala	Ser	Leu	Ile	Gly	Val
			85						90					95	
Glu	Gly	Gly	Asn	Ala	Thr	Arg	Ile	Gly	Arg	Phe	Ala	Asn	Tyr	Leu	Arg
			100					105					110		
Asn	Leu	Leu	Pro	Ser	Asn	Asp	Pro	Val	Val	Met	Glu	Met	Ala	Ser	Lys
		115					120					125			
Ala	Ile	Gly	Arg	Leu	Ala	Met	Ala	Gly	Asp	Thr	Phe	Thr	Ala	Glu	Tyr
	130					135					140				
Val	Glu	Phe	Glu	Val	Lys	Arg	Ala	Leu	Glu	Trp	Leu	Gly	Ala	Asp	Arg
145					150				155					160	
Asn	Glu	Gly	Arg	Arg	His	Ala	Ala	Val	Leu	Val	Leu	Arg	Glu	Leu	Ala
			165					170					175		
Ile	Ser	Val	Pro	Thr	Phe	Phe	Phe	Gln	Gln	Val	Gln	Pro	Phe	Phe	Asp
		180						185					190		
Asn	Ile	Phe	Val	Ala	Val	Trp	Asp	Pro	Lys	Gln	Ala	Ile	Arg	Glu	Gly
	195					200						205			
Ala	Val	Ala	Ala	Leu	Arg	Ala	Cys	Leu	Ile	Leu	Thr	Thr	Gln	Arg	Glu
	210					215					220				
Pro	Lys	Glu	Met	Gln	Lys	Pro	Gln	Trp	Tyr	Arg	His	Thr	Phe	Glu	Glu
225				230					235					240	
Ala	Glu	Lys	Gly	Phe	Asp	Glu	Thr	Leu	Ala	Lys	Glu	Lys	Gly	Met	Asn
			245					250					255		
Arg	Asp	Asp	Arg	Ile	His	Gly	Ala	Leu	Leu	Ile	Leu	Asn	Glu	Leu	Val
		260						265					270		
Arg	Ile	Ser	Ser	Met	Glu	Gly	Glu	Arg	Leu	Arg	Glu	Glu	Met	Glu	Glu
	275					280					285				
Ile	Thr	Gln	Gln	Gln	Leu	Val	His	Asp	Lys	Tyr	Cys	Lys	Asp	Leu	Met
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Gly	Phe	Gly	Thr	Lys	Pro	Arg	His	Ile	Thr	Pro	Phe	Thr	Ser	Phe	Gln
305				310					315					320	
Ala	Val	Gln	Pro	Gln	Gln	Ser	Asn	Ala	Leu	Val	Gly	Leu	Leu	Gly	Tyr
			325						330				335		
Ser	Ser	His	Gln	Gly	Leu	Met	Gly	Phe	Gly	Thr	Ser	Pro	Ser	Pro	Ala
		340						345					350		
Lys	Ser	Thr	Leu	Val	Glu	Ser	Arg	Cys	Cys	Arg	Asp	Leu	Met	Glu	Glu
	355					360					365				
Lys	Phe	Asp	Gln	Val	Cys	Gln	Trp	Val	Leu	Lys	Cys	Arg	Asn	Ser	Lys
	370					375					380				
Asn	Ser	Leu	Ile	Gln	Met	Thr	Ile	Leu	Asn	Leu	Leu	Pro	Arg	Leu	Ala
385				390					395					400	
Ala	Phe	Arg	Pro	Ser	Ala	Phe	Thr	Asp	Thr	Gln	Tyr	Leu	Gln	Asp	Thr
			405						410				415		
Met	Asn	His	Val	Leu	Ser	Cys	Val	Lys	Lys	Glu	Lys	Glu	Arg	Thr	Ala
		420						425					430		
Ala	Phe	Gln	Ala	Leu	Gly	Leu	Leu	Ser	Val	Ala	Val	Arg	Ser	Glu	Phe
	435					440					445				
Lys	Val	Tyr	Leu	Pro	Arg	Val	Leu	Asp	Ile	Ile	Arg	Ala	Ala	Leu	Pro
	450					455					460				
Pro	Lys	Asp	Phe	Ala	His	Lys	Arg	Gln	Lys	Ala	Met	Gln	Val	Asp	Ala
465				470					475					480	

Thr	Val	Phe	Thr	Cys	Ile	Ser	Met	Leu	Ala	Arg	Ala	Met	Gly	Pro	Gly
				485					490					495	
Ile	Gln	Gln	Asp	Ile	Lys	Glu	Leu	Leu	Glu	Pro	Met	Leu	Ala	Val	Gly
			500					505					510		
Leu	Ser	Pro	Ala	Leu	Thr	Ala	Val	Leu	Tyr	Asp	Leu	Ser	Arg	Gln	Ile
		515					520					525			
Pro	Gln	Leu	Lys	Lys	Asp	Ile	Gln	Asp	Gly	Leu	Leu	Lys	Met	Leu	Ser
		530				535						540			
Leu	Val	Leu	Met	His	Lys	Pro	Leu	Arg	His	Pro	Gly	Met	Pro	Lys	Gly
		545			550					555					560
Leu	Ala	His	Gln	Leu	Ala	Ser	Pro	Gly	Leu	Thr	Thr	Leu	Pro	Glu	Ala
			565						570					575	
Ser	Asp	Val	Gly	Ser	Ile	Thr	Leu	Ala	Leu	Arg	Thr	Leu	Gly	Ser	Phe
			580					585					590		
Glu	Phe	Glu	Gly	His	Ser	Leu	Thr	Gln	Phe	Val	Arg	His	Cys	Ala	Asp
		595					600					605			
His	Phe	Leu	Asn	Ser	Glu	His	Lys	Glu	Ile	Arg	Met	Glu	Ala	Ala	Arg
		610				615					620				
Thr	Cys	Ser	Arg	Leu	Leu	Thr	Pro	Ser	Ile	His	Leu	Ile	Ser	Gly	His
					630					635					640
Ala	His	Val	Val	Ser	Gln	Thr	Ala	Val	Gln	Val	Val	Ala	Asp	Val	Leu
				645					650					655	
Ser	Lys	Leu	Leu	Val	Val	Gly	Ile	Thr	Asp	Pro	Asp	Pro	Asp	Ile	Arg
			660					665					670		
Tyr	Cys	Val	Leu	Ala	Ser	Leu	Asp	Glu	Arg	Phe	Asp	Ala	His	Leu	Ala
		675					680					685			
Gln	Ala	Glu	Asn	Leu	Gln	Ala	Leu	Phe	Val	Ala	Leu	Asn	Asp	Gln	Val
		690				695					700				
Phe	Glu	Ile	Arg	Glu	Leu	Ala	Ile	Cys	Thr	Val	Gly	Arg	Leu	Ser	Ser
		705			710					715					720
Met	Asn	Pro	Ala	Phe	Val	Met	Pro	Phe	Leu	Arg	Lys	Met	Leu	Ile	Gln
				725					730					735	
Ile	Leu	Thr	Glu	Leu	Glu	His	Ser	Gly	Ile	Gly	Arg	Ile	Lys	Glu	Gln
			740					745					750		
Ser	Ala	Arg	Met	Leu	Gly	His	Leu	Val	Ser	Asn	Ala	Pro	Arg	Leu	Ile
		755					760					765			
Arg	Pro	Tyr	Met	Glu	Pro	Ile	Leu	Lys	Ala	Leu	Ile	Leu	Lys	Leu	Lys
		770				775					780				
Asp	Pro	Asp	Pro	Asp	Pro	Asn	Pro	Gly	Val	Ile	Asn	Asn	Val	Leu	Ala
		785			790					795					800
Thr	Ile	Gly	Glu	Leu	Ala	Gln	Val	Ser	Gly	Leu	Glu	Met	Arg	Lys	Trp
			805						810					815	
Val	Asp	Glu	Leu	Phe	Ile	Ile	Ile	Met	Asp	Met	Leu	Gln	Asp	Ser	Ser
			820					825					830		
Leu	Leu	Ala	Lys	Arg	Gln	Val	Ala	Leu	Trp	Thr	Leu	Gly	Gln	Leu	Val
		835					840					845			
Ala	Ser	Thr	Gly	Tyr	Val	Val	Glu	Pro	Tyr	Arg	Lys	Tyr	Pro	Thr	Leu
						855					860				
Leu	Glu	Val	Leu	Leu	Asn	Phe	Leu	Lys	Thr	Glu	Gln	Asn	Gln	Gly	Thr
					870					875					880
Arg	Arg	Glu	Ala	Ile	Arg	Val	Leu	Gly	Leu	Leu	Gly	Ala	Leu	Asp	Pro
				885					890					895	
Tyr	Lys	His	Lys	Val	Asn	Ile	Gly	Met	Ile	Asp	Gln	Ser	Arg	Asp	Ala
			900					905					910		
Ser	Ala	Val	Ser	Leu	Ser	Glu	Ser	Lys	Ser	Ser	Gln	Asp	Ser	Ser	Asp
		915					920					925			
Tyr	Ser	Thr	Ser	Glu	Met	Leu	Val	Asn	Met	Gly	Asn	Leu	Pro	Leu	Asp
						935					940				
Glu	Phe	Tyr	Pro	Ala	Val	Ser	Met	Val	Ala	Leu	Met	Arg	Ile	Phe	Arg
					950					955					960
Asp	Gln	Ser	Leu	Ser	His	His	His	Thr	Met	Val	Val	Gln	Ala	Ile	Thr
				965					970					975	
Phe	Ile	Phe	Lys	Ser	Leu	Gly	Leu	Lys	Cys	Val	Gln	Phe	Leu	Pro	Gln

980	985	990
Val Met Pro Thr Phe Leu Asn Val Ile Arg Val Cys Asp Gly Ala Ile		
995	1000	1005
Arg Glu Phe Leu Phe Gln Gln Leu Gly Met Leu Val Ser Phe Val Lys		
1010	1015	1020
Ser His Ile Arg Pro Tyr Met Asp Glu Ile Val Thr Leu Met Arg Glu		
1025	1030	1035
Phe Trp Val Met Asn Thr Ser Ile Gln Ser Thr Ile Ile Leu Leu Ile		
1045	1050	1055
Glu Gln Ile Val Val Ala Leu Gly Gly Glu Phe Lys Leu Tyr Leu Pro		
1060	1065	1070
Gln Leu Ile Pro His Met Leu Arg Val Phe Met His Asp Asn Ser Pro		
1075	1080	1085
Gly Arg Ile Val Ser Ile Lys Leu Leu Ala Ala Ile Gln Leu Phe Gly		
1090	1095	1100
Ala Asn Leu Asp Asp Tyr Leu His Leu Leu Leu Pro Pro Ile Val Lys		
1105	1110	1115
Leu Phe Asp Ala Pro Glu Ala Pro Leu Pro Ser Arg Lys Ala Ala Leu		
1125	1130	1135
Glu Thr Val Asp Arg Leu Thr Glu Ser Leu Asp Phe Thr Asp Tyr Ala		
1140	1145	1150
Ser Arg Ile Ile His Pro Ile Val Arg Thr Leu Asp Gln Ser Pro Glu		
1155	1160	1165
Leu Arg Ser Thr Ala Met Asp Thr Leu Ser Ser Leu Val Phe Gln Leu		
1170	1175	1180
Gly Lys Lys Tyr Gln Ile Phe Ile Pro Met Val Asn Lys Val Leu Val		
1185	1190	1195
Arg His Arg Ile Asn His Gln Arg Tyr Asp Val Leu Ile Cys Arg Ile		
1205	1210	1215
Val Lys Gly Tyr Thr Leu Ala Asp Glu Glu Glu Asp Pro Leu Ile Tyr		
1220	1225	1230
Gln His Arg Met Leu Arg Ser Gly Gln Gly Asp Ala Leu Ala Ser Gly		
1235	1240	1245
Pro Val Glu Thr Gly Pro Met Lys Lys Leu His Val Ser Thr Ile Asn		
1250	1255	1260
Leu Gln Lys Ala Trp Gly Ala Ala Arg Arg Val Ser Lys Asp Asp Trp		
1265	1270	1275
Leu Glu Trp Leu Arg Arg Leu Ser Leu Glu Leu Leu Lys Asp Ser Ser		
1285	1290	1295
Ser Pro Ser Leu Arg Ser Cys Trp Ala Leu Ala Gln Ala Tyr Asn Pro		
1300	1305	1310
Met Ala Arg Asp Leu Phe Asn Ala Ala Phe Val Ser Cys Trp Ser Glu		
1315	1320	1325
Leu Asn Glu Asp Gln Gln Asp Glu Leu Ile Arg Ser Ile Glu Leu Ala		
1330	1335	1340
Leu Thr Ser Gln Asp Ile Ala Glu Val Thr Gln Thr Leu Leu Asn Leu		
1345	1350	1355
Ala Glu Phe Met Glu His Ser Asp Lys Gly Pro Leu Pro Leu Arg Asp		
1365	1370	1375
Asp Asn Gly Ile Val Leu Leu Gly Glu Arg Ala Ala Lys Cys Arg Ala		
1380	1385	1390
Tyr Ala Lys Ala Leu His Tyr Lys Glu Leu Glu Phe Gln Lys Gly Pro		
1395	1400	1405
Thr Pro Ala Ile Leu Glu Ser Leu Ile Ser Ile Asn Asn Lys Leu Gln		
1410	1415	1420
Gln Pro Glu Ala Ala Ala Gly Val Leu Glu Tyr Ala Met Lys His Phe		
1425	1430	1435
Gly Glu Leu Glu Ile Gln Ala Thr Trp Tyr Glu Lys Leu His Glu Trp		
1445	1450	1455
Glu Asp Ala Leu Val Ala Tyr Asp Lys Lys Met Asp Thr Asn Lys Asp		
1460	1465	1470
Asp Pro Glu Leu Met Leu Gly Arg Met Arg Cys Leu Glu Ala Leu Gly		
1475	1480	1485

Glu Trp Gly Gln Leu His Gln Gln Cys Cys Glu Lys Trp Thr Leu Val  
 1490 1495 1500  
 Asn Asp Glu Thr Gln Ala Lys Met Ala Arg Met Ala Ala Ala Ala  
 1505 1510 1515 1520  
 Trp Gly Leu Gly Gln Trp Asp Ser Met Glu Glu Tyr Thr Cys Met Ile  
 1525 1530 1535  
 Pro Arg Asp Thr His Asp Gly Ala Phe Tyr Arg Ala Val Leu Ala Leu  
 1540 1545 1550  
 His Gln Asp Leu Phe Ser Leu Ala Gln Gln Cys Ile Asp Lys Ala Arg  
 1555 1560 1565  
 Asp Leu Leu Asp Ala Glu Leu Thr Ala Met Ala Gly Glu Ser Tyr Ser  
 1570 1575 1580  
 Arg Ala Tyr Gly Ala Met Val Ser Cys His Met Leu Ser Glu Leu Glu  
 1585 1590 1595 1600  
 Glu Val Ile Gln Tyr Lys Leu Val Pro Glu Arg Arg Glu Ile Ile Arg  
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 Gln Ile Trp Trp Glu Arg Leu Gln Gly Cys Gln Arg Ile Val Glu Asp  
 1620 1625 1630  
 Trp Gln Lys Ile Leu Met Val Arg Ser Leu Val Val Ser Pro His Glu  
 1635 1640 1645  
 Asp Met Arg Thr Trp Leu Lys Tyr Ala Ser Leu Cys Gly Lys Ser Gly  
 1650 1655 1660  
 Arg Leu Ala Leu Ala His Lys Thr Leu Val Leu Leu Gly Val Asp  
 1665 1670 1675 1680  
 Pro Ser Arg Gln Leu Asp His Pro Leu Pro Thr Val His Pro Gln Val  
 1685 1690 1695  
 Thr Tyr Ala Tyr Met Lys Asn Met Trp Lys Ser Ala Arg Lys Ile Asp  
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 Ala Phe Gln His Met Gln His Phe Val Gln Thr Met Gln Gln Gln Ala  
 1715 1720 1725  
 Gln His Ala Ile Ala Thr Glu Asp Gln Gln His Lys Gln Glu Leu His  
 1730 1735 1740  
 Lys Leu Met Ala Arg Cys Phe Leu Lys Leu Gly Glu Trp Gln Leu Asn  
 1745 1750 1755 1760  
 Leu Gln Gly Ile Asn Glu Ser Thr Ile Pro Lys Val Leu Gln Tyr Tyr  
 1765 1770 1775  
 Ser Ala Ala Thr Glu His Asp Arg Ser Trp Tyr Lys Ala Trp His Ala  
 1780 1785 1790  
 Trp Ala Val Met Asn Phe Glu Ala Val Leu His Tyr Lys His Gln Asn  
 1795 1800 1805  
 Gln Ala Arg Asp Glu Lys Lys Lys Leu Arg His Ala Ser Gly Ala Asn  
 1810 1815 1820  
 Ile Thr Asn Ala Thr Thr Ala Ala Thr Thr Ala Ala Thr Ala Thr Thr  
 1825 1830 1835 1840  
 Thr Ala Ser Thr Glu Gly Ser Asn Ser Glu Ser Glu Ala Glu Ser Thr  
 1845 1850 1855  
 Glu Asn Ser Pro Thr Pro Ser Pro Leu Gln Lys Lys Val Thr Glu Asp  
 1860 1865 1870  
 Leu Ser Lys Thr Leu Leu Met Tyr Thr Val Pro Ala Val Gln Gly Phe  
 1875 1880 1885  
 Phe Arg Ser Ile Ser Leu Ser Arg Gly Asn Asn Leu Gln Asp Thr Leu  
 1890 1895 1900  
 Arg Val Leu Thr Leu Trp Phe Asp Tyr Gly His Trp Pro Asp Val Asn  
 1905 1910 1915 1920  
 Glu Ala Leu Val Glu Gly Val Lys Ala Ile Gln Ile Asp Thr Trp Leu  
 1925 1930 1935  
 Gln Val Ile Pro Gln Leu Ile Ala Arg Ile Asp Thr Pro Arg Pro Leu  
 1940 1945 1950  
 Val Gly Arg Leu Ile His Gln Leu Leu Thr Asp Ile Gly Arg Tyr His  
 1955 1960 1965  
 Pro Gln Ala Leu Ile Tyr Pro Leu Thr Val Ala Ser Lys Ser Thr Thr  
 1970 1975 1980  
 Thr Ala Arg His Asn Ala Ala Asn Lys Ile Leu Lys Asn Met Cys Glu

1985	1990				1995				2000			
His Ser Asn Thr	Leu Val Gln Gln	Ala Met Met Val	Ser Glu Glu Leu									
	2005	2010	2015									
Ile Arg Val Ala	Ile Leu Trp His	Glu Met Trp His	Glu Gly Leu Glu									
	2020	2025	2030									
Glu Ala Ser Arg	Leu Tyr Phe Gly	Glu Arg Asn Val	Lys Gly Met Phe									
	2035	2040	2045									
Glu Val Leu Glu	Pro Leu His Ala	Met Met Glu Arg	Gly Pro Gln Thr									
	2050	2055	2060									
Leu Lys Glu Thr	Ser Phe Asn Gln	Ala Tyr Gly Arg	Asp Leu Met Glu									
2065	2070	2075	2080									
Ala Gln Glu Trp	Cys Arg Lys Tyr	Met Lys Ser Gly	Asn Val Lys Asp									
	2085	2090	2095									
Leu Thr Gln Ala	Trp Asp Leu Tyr	Tyr His Val Phe	Arg Arg Ile Ser									
	2100	2105	2110									
Lys Gln Leu Pro	Gln Leu Thr Ser	Leu Glu Leu Gln	Tyr Val Ser Pro									
	2115	2120	2125									
Lys Leu Leu Met	Cys Arg Asp Leu	Glu Leu Ala Val	Pro Gly Thr Tyr									
	2130	2135	2140									
Asp Pro Asn Gln	Pro Ile Ile Arg	Ile Gln Ser Ile	Ala Pro Ser Leu									
2145	2150	2155	2160									
Gln Val Ile Thr	Ser Lys Gln Arg	Pro Arg Lys Leu	Thr Leu Met Gly									
	2165	2170	2175									
Ser Asn Gly His	Glu Phe Val Phe	Leu Leu Lys Gly	His Glu Asp Leu									
	2180	2185	2190									
Arg Gln Asp Glu	Arg Val Met Gln	Leu Phe Gly Leu	Val Asn Thr Leu									
	2195	2200	2205									
Leu Ala Asn Asp	Pro Thr Ser Leu	Arg Lys Asn Leu	Ser Ile Gln Arg									
	2210	2215	2220									
Tyr Ala Val Ile	Pro Leu Ser Thr	Asn Ser Gly Leu	Ile Gly Trp Val									
2225	2230	2235	2240									
Pro His Cys Asp	Thr Leu His Ala	Leu Ile Arg Asp	Tyr Arg Glu Lys									
	2245	2250	2255									
Lys Lys Ile Leu	Leu Asn Ile Glu	His Arg Ile Met	Leu Arg Met Ala									
	2260	2265	2270									
Pro Asp Tyr Asp	His Leu Thr Leu	Met Gln Lys Val	Glu Val Phe Glu									
	2275	2280	2285									
His Ala Val Asn	Asn Thr Ala Gly	Asp Asp Leu Ala	Lys Leu Leu Trp									
	2290	2295	2300									
Leu Lys Ser Pro	Ser Ser Glu Val	Trp Phe Asp Arg	Arg Thr Asn Tyr									
2305	2310	2315	2320									
Thr Arg Ser Leu	Ala Val Met Ser	Met Val Gly Tyr	Ile Leu Gly Leu									
	2325	2330	2335									
Gly Asp Arg His	Pro Ser Asn Leu	Met Leu Asp Arg	Leu Ser Gly Lys									
	2340	2345	2350									
Ile Leu His Ile	Asp Phe Gly Asp	Cys Phe Glu Val	Ala Met Thr Arg									
	2355	2360	2365									
Glu Lys Phe Pro	Glu Lys Ile Pro	Phe Arg Leu Thr	Arg Met Leu Thr									
	2370	2375	2380									
Asn Ala Met Glu	Val Thr Gly Leu	Asp Gly Asn Tyr	Arg Ile Thr Cys									
2385	2390	2395	2400									
His Thr Val Met	Glu Val Leu Arg	Glu His Lys Asp	Ser Val Met Ala									
	2405	2410	2415									
Val Leu Glu Ala	Phe Val Tyr Asp	Pro Leu Leu Asn	Trp Arg Leu Met									
	2420	2425	2430									
Asp Thr Asn Thr	Lys Gly Asn Lys	Arg Ser Arg Thr	Arg Thr Asp Ser									
	2435	2440	2445									
Tyr Ser Ala Gly	Gln Ser Val Glu	Ile Leu Asp Gly	Val Glu Leu Gly									
	2450	2455	2460									
Glu Pro Ala His	Lys Lys Thr Gly	Thr Thr Val Pro	Glu Ser Ile His									
2465	2470	2475	2480									
Ser Phe Ile Gly	Asp Gly Leu Val	Lys Pro Glu Ala	Leu Asn Lys Lys									
	2485	2490	2495									

Ala Ile Gln Ile Ile Asn Arg Val Arg Asp Lys Leu Thr Gly Arg Asp  
2500 2505 2510  
Phe Ser His Asp Asp Thr Leu Asp Val Pro Thr Gln Val Glu Leu Leu  
2515 2520 2525  
Ile Lys Gln Ala Thr Ser His Glu Asn Leu Cys Gln Cys Tyr Ile Gly  
2530 2535 2540  
Trp Cys Pro Phe Trp  
2545

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<213> Homo Sapiens

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Met Ala Glu Ala Pro Gln Val Val Glu Ile Asp Pro Asp Phe Glu Pro  
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Leu Pro Arg Pro Arg Ser Cys Thr Trp Pro Leu Pro Arg Pro Glu Phe  
20 25 30  
Ser Gln Ser Asn Ser Ala Thr Ser Ser Pro Ala Pro Ser Gly Ser Ala  
35 40 45  
Ala Ala Asn Pro Asp Ala Ala Gly Leu Pro Ser Ala Ser Ala Ala  
50 55 60  
Ala Val Ser Ala Asp Phe Met Ser Asn Leu Ser Leu Leu Glu Glu Ser  
65 70 75 80  
Glu Asp Phe Pro Gln Ala Pro Gly Ser Val Ala Ala Val Ala Ala  
85 90 95  
Ala Ala Ala Ala Ala Ala Thr Gly Gly Leu Cys Gly Asp Phe Gln Gly  
100 105 110  
Pro Glu Ala Gly Cys Leu His Pro Ala Pro Pro Gln Pro Pro Pro Pro  
115 120 125  
Gly Pro Leu Ser Gln His Pro Pro Val Pro Pro Ala Ala Ala Gly Pro  
130 135 140  
Leu Ala Gly Gln Pro Arg Lys Ser Ser Ser Arg Arg Asn Ala Trp  
145 150 155 160  
Gly Asn Leu Ser Tyr Ala Asp Leu Ile Thr Lys Ala Ile Glu Ser Ser  
165 170 175  
Ala Glu Lys Arg Leu Thr Leu Ser Gln Ile Tyr Glu Trp Met Val Lys  
180 185 190  
Ser Val Pro Tyr Phe Lys Asp Lys Gly Asp Ser Asn Ser Ser Ala Gly  
195 200 205  
Trp Lys Asn Ser Ile Arg His Asn Leu Ser Leu His Ser Lys Phe Ile  
210 215 220  
Arg Val Gln Asn Glu Gly Thr Gly Lys Ser Ser Trp Trp Met Leu Asn  
225 230 235 240  
Pro Glu Gly Gly Lys Ser Gly Lys Ser Pro Arg Arg Arg Ala Ala Ser  
245 250 255  
Met Asp Asn Asn Ser Lys Phe Ala Lys Ser Arg Ser Arg Ala Ala Lys  
260 265 270  
Lys Lys Ala Ser Leu Gln Ser Gly Gln Glu Gly Ala Gly Asp Ser Pro  
275 280 285  
Gly Ser Gln Phe Ser Lys Trp Pro Ala Ser Pro Gly Ser His Ser Asn  
290 295 300  
Asp Asp Phe Asp Asn Trp Ser Thr Phe Arg Pro Arg Thr Ser Ser Asn  
305 310 315 320  
Ala Ser Thr Ile Ser Gly Arg Leu Ser Pro Ile Met Thr Glu Gln Asp  
325 330 335  
Asp Leu Gly Glu Gly Asp Val His Ser Met Val Tyr Pro Pro Ser Ala  
340 345 350  
Ala Lys Met Ala Ser Thr Leu Pro Ser Leu Ser Glu Ile Ser Asn Pro  
355 360 365  
Glu Asn Met Glu Asn Leu Leu Asp Asn Leu Asn Leu Leu Ser Ser Pro  
370 375 380

Thr	Ser	Leu	Thr	Val	Ser	Thr	Gln	Ser	Ser	Pro	Gly	Thr	Met	Met	Gln
385					390					395					400
Gln	Thr	Pro	Cys	Tyr	Ser	Phe	Ala	Pro	Pro	Asn	Thr	Ser	Leu	Asn	Ser
			405						410					415	
Pro	Ser	Pro	Asn	Tyr	Gln	Lys	Tyr	Thr	Tyr	Gly	Gln	Ser	Ser	Met	Ser
			420					425						430	
Pro	Leu	Pro	Gln	Met	Pro	Ile	Gln	Thr	Leu	Gln	Asp	Asn	Lys	Ser	Ser
		435					440					445			
Tyr	Gly	Gly	Met	Ser	Gln	Tyr	Asn	Cys	Ala	Pro	Gly	Leu	Leu	Lys	Glu
	450					455					460				
Leu	Leu	Thr	Ser	Asp	Ser	Pro	Pro	His	Asn	Asp	Ile	Met	Thr	Pro	Val
465					470					475					480
Asp	Pro	Gly	Val	Ala	Gln	Pro	Asn	Ser	Arg	Val	Leu	Gly	Gln	Asn	Val
			485						490					495	
Met	Met	Gly	Pro	Asn	Ser	Val	Met	Ser	Thr	Tyr	Gly	Ser	Gln	Ala	Ser
			500					505					510		
His	Asn	Lys	Met	Met	Asn	Pro	Ser	Ser	His	Thr	His	Pro	Gly	His	Ala
	515						520					525			
Gln	Gln	Thr	Ser	Ala	Val	Asn	Gly	Arg	Pro	Leu	Pro	His	Thr	Val	Ser
	530						535					540			
Thr	Met	Pro	His	Thr	Ser	Gly	Met	Asn	Arg	Leu	Thr	Gln	Val	Lys	Thr
545					550					555					560
Pro	Val	Gln	Val	Pro	Leu	Pro	His	Pro	Met	Gln	Met	Ser	Ala	Leu	Gly
			565						570					575	
Gly	Tyr	Ser	Ser	Val	Ser	Ser	Cys	Asn	Gly	Tyr	Gly	Arg	Met	Gly	Leu
			580					585					590		
Leu	His	Gln	Glu	Lys	Leu	Pro	Ser	Asp	Leu	Asp	Gly	Met	Phe	Ile	Glu
	595						600					605			
Arg	Leu	Asp	Cys	Asp	Met	Glu	Ser	Ile	Ile	Arg	Asn	Asp	Leu	Met	Asp
	610					615					620				
Gly	Asp	Thr	Leu	Asp	Phe	Asn	Phe	Asp	Asn	Val	Leu	Pro	Asn	Gln	Ser
625					630					635					640
Phe	Pro	His	Ser	Val	Lys	Thr	Thr	Thr	His	Ser	Trp	Val	Ser	Gly	
			645						650					655	

<210> 4

<211> 480

<212> PRT

<213> Homo Sapiens

<400> 4

Met	Ser	Asp	Val	Ala	Ile	Val	Lys	Glu	Gly	Trp	Leu	His	Lys	Arg	Gly
1			5						10					15	
Glu	Tyr	Ile	Lys	Thr	Trp	Arg	Pro	Arg	Tyr	Phe	Leu	Leu	Lys	Asn	Asp
			20					25					30		
Gly	Thr	Phe	Ile	Gly	Tyr	Lys	Glu	Arg	Pro	Gln	Asp	Val	Asp	Gln	Arg
		35					40					45			
Glu	Ala	Pro	Leu	Asn	Asn	Phe	Ser	Val	Ala	Gln	Cys	Gln	Leu	Met	Lys
	50					55					60				
Thr	Glu	Arg	Pro	Arg	Pro	Asn	Thr	Phe	Ile	Ile	Arg	Cys	Leu	Gln	Trp
65					70					75					80
Thr	Thr	Val	Ile	Glu	Arg	Thr	Phe	His	Val	Glu	Thr	Pro	Glu	Glu	Arg
			85						90					95	
Glu	Glu	Trp	Thr	Thr	Ala	Ile	Gln	Thr	Val	Ala	Asp	Gly	Leu	Lys	Lys
			100					105					110		
Gln	Glu	Glu	Glu	Glu	Met	Asp	Phe	Arg	Ser	Gly	Ser	Pro	Ser	Asp	Asn
		115				120						125			
Ser	Gly	Ala	Glu	Glu	Met	Glu	Val	Ser	Leu	Ala	Lys	Pro	Lys	His	Arg
	130					135					140				
Val	Thr	Met	Asn	Glu	Phe	Glu	Tyr	Leu	Lys	Leu	Leu	Gly	Lys	Gly	Thr
145					150					155					160
Phe	Gly	Lys	Val	Ile	Leu	Val	Lys	Glu	Lys	Ala	Thr	Gly	Arg	Tyr	Tyr
			165						170					175	



Ala	Met	Lys	Ile	Leu	Lys	Lys	Glu	Val	Ile	Val	Ala	Lys	Asp	Glu	Val
			180					185					190		
Ala	His	Thr	Leu	Thr	Glu	Asn	Arg	Val	Leu	Gln	Asn	Ser	Arg	His	Pro
		195					200					205			
Phe	Leu	Thr	Ala	Leu	Lys	Tyr	Ser	Phe	Gln	Thr	His	Asp	Arg	Leu	Cys
	210					215					220				
Phe	Val	Met	Glu	Tyr	Ala	Asn	Gly	Gly	Glu	Leu	Phe	Phe	His	Leu	Ser
225					230					235				240	
Arg	Glu	Arg	Val	Phe	Ser	Glu	Asp	Arg	Ala	Arg	Phe	Tyr	Gly	Ala	Glu
			245						250					255	
Ile	Val	Ser	Ala	Leu	Asp	Tyr	Leu	His	Ser	Glu	Lys	Asn	Val	Val	Tyr
			260					265					270		
Arg	Asp	Leu	Lys	Leu	Glu	Asn	Leu	Met	Leu	Asp	Lys	Asp	Gly	His	Ile
		275					280					285			
Lys	Ile	Thr	Asp	Phe	Gly	Leu	Cys	Lys	Glu	Gly	Ile	Lys	Asp	Gly	Ala
	290					295					300				
Thr	Met	Lys	Thr	Phe	Cys	Gly	Thr	Pro	Glu	Tyr	Leu	Ala	Pro	Glu	Val
305					310						315				320
Leu	Glu	Asp	Asn	Asp	Tyr	Gly	Arg	Ala	Val	Asp	Trp	Trp	Gly	Leu	Gly
			325						330					335	
Val	Val	Met	Tyr	Glu	Met	Met	Cys	Gly	Arg	Leu	Pro	Phe	Tyr	Asn	Gln
			340					345					350		
Asp	His	Glu	Lys	Leu	Phe	Glu	Leu	Ile	Leu	Met	Glu	Glu	Ile	Arg	Phe
		355					360					365			
Pro	Arg	Thr	Leu	Gly	Pro	Glu	Ala	Lys	Ser	Leu	Leu	Ser	Gly	Leu	Leu
		370				375					380				
Lys	Lys	Asp	Pro	Lys	Gln	Arg	Leu	Gly	Gly	Gly	Ser	Glu	Asp	Ala	Lys
385					390					395					400
Glu	Ile	Met	Gln	His	Arg	Phe	Phe	Ala	Gly	Ile	Val	Trp	Gln	His	Val
			405						410					415	
Tyr	Glu	Lys	Lys	Leu	Ser	Pro	Pro	Phe	Lys	Pro	Gln	Val	Thr	Ser	Glu
			420					425					430		
Thr	Asp	Thr	Arg	Tyr	Phe	Asp	Glu	Glu	Phe	Thr	Ala	Gln	Met	Ile	Thr
		435					440					445			
Ile	Thr	Pro	Pro	Asp	Gln	Asp	Asp	Ser	Met	Glu	Cys	Val	Asp	Ser	Glu
	450					455					460				
Arg	Arg	Pro	His	Phe	Pro	Gln	Phe	Ser	Tyr	Ser	Ala	Ser	Ser	Thr	Ala
465					470					475					480

<210> 5

<211> 403

<212> PRT

<213> Homo Sapiens

<400> 5

Met	Thr	Ala	Ile	Ile	Lys	Glu	Ile	Val	Ser	Arg	Asn	Lys	Arg	Arg	Tyr
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Gln	Glu	Asp	Gly	Phe	Asp	Leu	Asp	Leu	Thr	Tyr	Ile	Tyr	Pro	Asn	Ile
		20						25					30		
Ile	Ala	Met	Gly	Phe	Pro	Ala	Glu	Arg	Leu	Glu	Gly	Val	Tyr	Arg	Asn
		35					40					45			
Asn	Ile	Asp	Asp	Val	Val	Arg	Phe	Leu	Asp	Ser	Lys	His	Lys	Asn	His
		50				55					60				
Tyr	Lys	Ile	Tyr	Asn	Leu	Cys	Ala	Glu	Arg	His	Tyr	Asp	Thr	Ala	Lys
65					70					75				80	
Phe	Asn	Cys	Arg	Val	Ala	Gln	Tyr	Pro	Phe	Glu	Asp	His	Asn	Pro	Pro
			85						90					95	
Gln	Leu	Glu	Leu	Ile	Lys	Pro	Phe	Cys	Glu	Asp	Leu	Asp	Gln	Trp	Leu
		100						105					110		
Ser	Glu	Asp	Asp	Asn	His	Val	Ala	Ala	Ile	His	Cys	Lys	Ala	Gly	Lys
		115					120					125			
Gly	Arg	Thr	Gly	Val	Met	Ile	Cys	Ala	Tyr	Leu	Leu	His	Arg	Gly	Lys
	130					135					140				

Phe	Leu	Lys	Ala	Gln	Glu	Ala	Leu	Asp	Phe	Tyr	Gly	Glu	Val	Arg	Thr
145					150					155					160
Arg	Asp	Lys	Lys	Gly	Val	Thr	Ile	Pro	Ser	Gln	Arg	Arg	Tyr	Val	Tyr
				165					170					175	
Tyr	Tyr	Ser	Tyr	Leu	Leu	Lys	Asn	His	Leu	Asp	Tyr	Arg	Pro	Val	Ala
			180				185						190		
Leu	Leu	Phe	His	Lys	Met	Met	Phe	Glu	Thr	Ile	Pro	Met	Phe	Ser	Gly
		195					200					205			
Gly	Thr	Cys	Asn	Pro	Gln	Phe	Val	Val	Cys	Gln	Leu	Lys	Val	Lys	Ile
	210					215					220				
Tyr	Ser	Ser	Asn	Ser	Gly	Pro	Thr	Arg	Arg	Glu	Asp	Lys	Phe	Met	Tyr
225					230					235					240
Phe	Glu	Phe	Pro	Gln	Pro	Leu	Pro	Val	Cys	Gly	Asp	Ile	Lys	Val	Glu
				245					250					255	
Phe	Phe	His	Lys	Gln	Asn	Lys	Met	Leu	Lys	Lys	Asp	Lys	Met	Phe	His
			260				265						270		
Phe	Trp	Val	Asn	Thr	Phe	Phe	Ile	Pro	Gly	Pro	Glu	Glu	Thr	Ser	Glu
		275					280					285			
Lys	Val	Glu	Asn	Gly	Ser	Leu	Cys	Asp	Gln	Glu	Ile	Asp	Ser	Ile	Cys
	290					295					300				
Ser	Ile	Glu	Arg	Ala	Asp	Asn	Asp	Lys	Glu	Tyr	Leu	Val	Leu	Thr	Leu
305					310					315					320
Thr	Lys	Asn	Asp	Leu	Asp	Lys	Ala	Asn	Lys	Asp	Lys	Ala	Asn	Arg	Tyr
				325					330					335	
Phe	Ser	Pro	Asn	Phe	Lys	Val	Lys	Leu	Tyr	Phe	Thr	Lys	Thr	Val	Glu
			340					345						350	
Glu	Pro	Ser	Asn	Pro	Glu	Ala	Ser	Ser	Ser	Thr	Ser	Val	Thr	Pro	Asp
		355					360					365			
Val	Ser	Asp	Asn	Glu	Pro	Asp	His	Tyr	Arg	Tyr	Ser	Asp	Thr	Thr	Asp
	370					375					380				
Ser	Asp	Pro	Glu	Asn	Glu	Pro	Phe	Asp	Glu	Asp	Gln	His	Thr	Gln	Ile
385					390					395					400
Thr	Lys	Val													

<210> 6

<211> 673

<212> PRT

<213> Homo Sapiens

<400> 6

Met	Ala	Glu	Ala	Pro	Ala	Ser	Pro	Ala	Pro	Leu	Ser	Pro	Leu	Glu	Val
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Glu	Leu	Asp	Pro	Glu	Phe	Glu	Pro	Gln	Ser	Arg	Pro	Arg	Ser	Cys	Thr
			20					25					30		
Trp	Pro	Leu	Gln	Arg	Pro	Glu	Leu	Gln	Ala	Ser	Pro	Ala	Lys	Pro	Ser
		35					40					45			
Gly	Glu	Thr	Ala	Ala	Asp	Ser	Met	Ile	Pro	Glu	Glu	Glu	Asp	Asp	Glu
	50					55					60				
Asp	Asp	Glu	Asp	Gly	Gly	Gly	Arg	Ala	Gly	Ser	Ala	Met	Ala	Ile	Gly
65					70					75					80
Gly	Gly	Gly	Gly	Ser	Gly	Thr	Leu	Gly	Ser	Gly	Leu	Leu	Leu	Glu	Asp
				85					90					95	
Ser	Ala	Arg	Val	Leu	Ala	Pro	Gly	Gly	Gln	Asp	Pro	Gly	Ser	Gly	Pro
			100					105					110		
Ala	Thr	Ala	Ala	Gly	Gly	Leu	Ser	Gly	Gly	Thr	Gln	Ala	Leu	Leu	Gln
	115						120					125			
Pro	Gln	Gln	Pro	Leu	Pro	Pro	Gln	Pro	Gly	Ala	Ala	Gly	Gly	Ser	
	130					135				140					
Gly	Gln	Pro	Arg	Lys	Cys	Ser	Ser	Arg	Arg	Asn	Ala	Trp	Gly	Asn	Leu
145					150					155					160
Ser	Tyr	Ala	Asp	Leu	Ile	Thr	Arg	Ala	Ile	Glu	Ser	Ser	Pro	Asp	Lys
				165					170					175	

Arg	Leu	Thr	Leu	Ser	Gln	Ile	Tyr	Glu	Trp	Met	Val	Arg	Cys	Val	Pro	180	185	190
Tyr	Phe	Lys	Asp	Lys	Gly	Asp	Ser	Asn	Ser	Ser	Ala	Gly	Trp	Lys	Asn	195	200	205
Ser	Ile	Arg	His	Asn	Leu	Ser	Leu	His	Ser	Arg	Phe	Met	Arg	Val	Gln	210	215	220
Asn	Glu	Gly	Thr	Gly	Lys	Ser	Ser	Trp	Trp	Ile	Ile	Asn	Pro	Asp	Gly	225	230	235
Gly	Lys	Ser	Gly	Lys	Ala	Pro	Arg	Arg	Arg	Ala	Val	Ser	Met	Asp	Asn	245	250	255
Ser	Asn	Lys	Tyr	Thr	Lys	Ser	Arg	Gly	Arg	Ala	Ala	Lys	Lys	Lys	Ala	260	265	270
Ala	Leu	Gln	Thr	Ala	Pro	Glu	Ser	Ala	Asp	Asp	Ser	Pro	Ser	Gln	Leu	275	280	285
Ser	Lys	Trp	Pro	Gly	Ser	Pro	Thr	Ser	Arg	Ser	Ser	Asp	Glu	Leu	Asp	290	295	300
Ala	Trp	Thr	Asp	Phe	Arg	Ser	Arg	Thr	Asn	Ser	Asn	Ala	Ser	Thr	Val	305	310	315
Ser	Gly	Arg	Leu	Ser	Pro	Ile	Met	Ala	Ser	Thr	Glu	Leu	Asp	Glu	Val	325	330	335
Gln	Asp	Asp	Asp	Ala	Pro	Leu	Ser	Pro	Met	Leu	Tyr	Ser	Ser	Ser	Ala	340	345	350
Ser	Leu	Ser	Pro	Ser	Val	Ser	Lys	Pro	Cys	Thr	Val	Glu	Leu	Pro	Arg	355	360	365
Leu	Thr	Asp	Met	Ala	Gly	Thr	Met	Asn	Leu	Asn	Asp	Gly	Leu	Thr	Glu	370	375	380
Asn	Leu	Met	Asp	Asp	Leu	Leu	Asp	Asn	Ile	Thr	Leu	Pro	Pro	Ser	Gln	385	390	395
Pro	Ser	Pro	Thr	Gly	Gly	Leu	Met	Gln	Arg	Ser	Ser	Ser	Phe	Pro	Tyr	405	410	415
Thr	Thr	Lys	Gly	Ser	Gly	Leu	Gly	Ser	Pro	Thr	Ser	Ser	Phe	Asn	Ser	420	425	430
Thr	Val	Phe	Gly	Pro	Ser	Ser	Leu	Asn	Ser	Leu	Arg	Gln	Ser	Pro	Met	435	440	445
Gln	Thr	Ile	Gln	Glu	Asn	Lys	Pro	Ala	Thr	Phe	Ser	Ser	Met	Ser	His	450	455	460
Tyr	Gly	Asn	Gln	Thr	Leu	Gln	Asp	Leu	Leu	Thr	Ser	Asp	Ser	Leu	Ser	465	470	475
His	Ser	Asp	Val	Met	Met	Thr	Gln	Ser	Asp	Pro	Leu	Met	Ser	Gln	Ala	485	490	495
Ser	Thr	Ala	Val	Ser	Ala	Gln	Asn	Ser	Arg	Arg	Asn	Val	Met	Leu	Arg	500	505	510
Asn	Asp	Pro	Met	Met	Ser	Phe	Ala	Ala	Gln	Pro	Asn	Gln	Gly	Ser	Leu	515	520	525
Val	Asn	Gln	Asn	Leu	Leu	His	His	Gln	His	Gln	Thr	Gln	Gly	Ala	Leu	530	535	540
Gly	Gly	Ser	Arg	Ala	Leu	Ser	Asn	Ser	Val	Ser	Asn	Met	Gly	Leu	Ser	545	550	555
Glu	Ser	Ser	Ser	Leu	Gly	Ser	Ala	Lys	His	Gln	Gln	Gln	Ser	Pro	Val	565	570	575
Ser	Gln	Ser	Met	Gln	Thr	Leu	Ser	Asp	Ser	Leu	Ser	Gly	Ser	Ser	Leu	580	585	590
Tyr	Ser	Thr	Ser	Ala	Asn	Leu	Pro	Val	Met	Gly	His	Glu	Lys	Phe	Pro	595	600	605
Ser	Asp	Leu	Asp	Leu	Asp	Met	Phe	Asn	Gly	Ser	Leu	Glu	Cys	Asp	Met	610	615	620
Glu	Ser	Ile	Ile	Arg	Ser	Glu	Leu	Met	Asp	Ala	Asp	Gly	Leu	Asp	Phe	625	630	635
Asn	Phe	Asp	Ser	Leu	Ile	Ser	Thr	Gln	Asn	Val	Val	Gly	Leu	Asn	Val	645	650	655
Gly	Asn	Phe	Thr	Gly	Ala	Lys	Gln	Ala	Ser	Ser	Gln	Ser	Trp	Val	Pro	660	665	670
Gly																		

<210> 7  
 <211> 1210  
 <212> PRT  
 <213> Homo Sapiens

<400> 7

Met	Arg	Pro	Ser	Gly	Thr	Ala	Gly	Ala	Ala	Leu	Leu	Ala	Leu	Leu	Ala
1				5				10					15		
Ala	Leu	Cys	Pro	Ala	Ser	Arg	Ala	Leu	Glu	Glu	Lys	Lys	Val	Cys	Gln
		20					25						30		
Gly	Thr	Ser	Asn	Lys	Leu	Thr	Gln	Leu	Gly	Thr	Phe	Glu	Asp	His	Phe
	35					40					45				
Leu	Ser	Leu	Gln	Arg	Met	Phe	Asn	Asn	Cys	Glu	Val	Val	Leu	Gly	Asn
	50				55					60					
Leu	Glu	Ile	Thr	Tyr	Val	Gln	Arg	Asn	Tyr	Asp	Leu	Ser	Phe	Leu	Lys
65				70					75					80	
Thr	Ile	Gln	Glu	Val	Ala	Gly	Tyr	Val	Leu	Ile	Ala	Leu	Asn	Thr	Val
		85					90						95		
Glu	Arg	Ile	Pro	Leu	Glu	Asn	Leu	Gln	Ile	Ile	Arg	Gly	Asn	Met	Tyr
	100						105					110			
Tyr	Glu	Asn	Ser	Tyr	Ala	Leu	Ala	Val	Leu	Ser	Asn	Tyr	Asp	Ala	Asn
	115					120					125				
Lys	Thr	Gly	Leu	Lys	Glu	Leu	Pro	Met	Arg	Asn	Leu	Gln	Glu	Ile	Leu
	130					135					140				
His	Gly	Ala	Val	Arg	Phe	Ser	Asn	Asn	Pro	Ala	Leu	Cys	Asn	Val	Glu
145				150					155					160	
Ser	Ile	Gln	Trp	Arg	Asp	Ile	Val	Ser	Ser	Asp	Phe	Leu	Ser	Asn	Met
		165					170						175		
Ser	Met	Asp	Phe	Gln	Asn	His	Leu	Gly	Ser	Cys	Gln	Lys	Cys	Asp	Pro
	180					185						190			
Ser	Cys	Pro	Asn	Gly	Ser	Cys	Trp	Gly	Ala	Gly	Glu	Glu	Asn	Cys	Gln
	195					200					205				
Lys	Leu	Thr	Lys	Ile	Ile	Cys	Ala	Gln	Gln	Cys	Ser	Gly	Arg	Cys	Arg
	210				215						220				
Gly	Lys	Ser	Pro	Ser	Asp	Cys	Cys	His	Asn	Gln	Cys	Ala	Ala	Gly	Cys
225				230					235					240	
Thr	Gly	Pro	Arg	Glu	Ser	Asp	Cys	Leu	Val	Cys	Arg	Lys	Phe	Arg	Asp
		245					250						255		
Glu	Ala	Thr	Cys	Lys	Asp	Thr	Cys	Pro	Pro	Leu	Met	Leu	Tyr	Asn	Pro
	260					265						270			
Thr	Thr	Tyr	Gln	Met	Asp	Val	Asn	Pro	Glu	Gly	Lys	Tyr	Ser	Phe	Gly
	275					280						285			
Ala	Thr	Cys	Val	Lys	Lys	Cys	Pro	Arg	Asn	Tyr	Val	Val	Thr	Asp	His
	290					295					300				
Gly	Ser	Cys	Val	Arg	Ala	Cys	Gly	Ala	Asp	Ser	Tyr	Glu	Met	Glu	Glu
305				310					315					320	
Asp	Gly	Val	Arg	Lys	Cys	Lys	Lys	Cys	Glu	Gly	Pro	Cys	Arg	Lys	Val
		325							330				335		
Cys	Asn	Gly	Ile	Gly	Ile	Gly	Glu	Phe	Lys	Asp	Ser	Leu	Ser	Ile	Asn
	340					345						350			
Ala	Thr	Asn	Ile	Lys	His	Phe	Lys	Asn	Cys	Thr	Ser	Ile	Ser	Gly	Asp
	355					360						365			
Leu	His	Ile	Leu	Pro	Val	Ala	Phe	Arg	Gly	Asp	Ser	Phe	Thr	His	Thr
	370				375						380				
Pro	Pro	Leu	Asp	Pro	Gln	Glu	Leu	Asp	Ile	Leu	Lys	Thr	Val	Lys	Glu
385				390					395					400	
Ile	Thr	Gly	Phe	Leu	Leu	Ile	Gln	Ala	Trp	Pro	Glu	Asn	Arg	Thr	Asp
		405					410					415			
Leu	His	Ala	Phe	Glu	Asn	Leu	Glu	Ile	Ile	Arg	Gly	Arg	Thr	Lys	Gln
	420						425				430				
His	Gly	Gln	Phe	Ser	Leu	Ala	Val	Val	Ser	Leu	Asn	Ile	Thr	Ser	Leu

	435					440					445				
Gly	Leu	Arg	Ser	Leu	Lys	Glu	Ile	Ser	Asp	Gly	Asp	Val	Ile	Ile	Ser
	450					455					460				
Gly	Asn	Lys	Asn	Leu	Cys	Tyr	Ala	Asn	Thr	Ile	Asn	Trp	Lys	Lys	Leu
465					470					475					480
Phe	Gly	Thr	Ser	Gly	Gln	Lys	Thr	Lys	Ile	Ile	Ser	Asn	Arg	Gly	Glu
				485					490					495	
Asn	Ser	Cys	Lys	Ala	Thr	Gly	Gln	Val	Cys	His	Ala	Leu	Cys	Ser	Pro
			500					505					510		
Glu	Gly	Cys	Trp	Gly	Pro	Glu	Pro	Arg	Asp	Cys	Val	Ser	Cys	Arg	Asn
		515					520					525			
Val	Ser	Arg	Gly	Arg	Glu	Cys	Val	Asp	Lys	Cys	Asn	Leu	Leu	Glu	Gly
	530					535					540				
Glu	Pro	Arg	Glu	Phe	Val	Glu	Asn	Ser	Glu	Cys	Ile	Gln	Cys	His	Pro
545					550					555					560
Glu	Cys	Leu	Pro	Gln	Ala	Met	Asn	Ile	Thr	Cys	Thr	Gly	Arg	Gly	Pro
				565					570					575	
Asp	Asn	Cys	Ile	Gln	Cys	Ala	His	Tyr	Ile	Asp	Gly	Pro	His	Cys	Val
			580					585					590		
Lys	Thr	Cys	Pro	Ala	Gly	Val	Met	Gly	Glu	Asn	Asn	Thr	Leu	Val	Trp
		595					600					605			
Lys	Tyr	Ala	Asp	Ala	Gly	His	Val	Cys	His	Leu	Cys	His	Pro	Asn	Cys
	610					615					620				
Thr	Tyr	Gly	Cys	Thr	Gly	Pro	Gly	Leu	Glu	Gly	Cys	Pro	Thr	Asn	Gly
625					630					635					640
Pro	Lys	Ile	Pro	Ser	Ile	Ala	Thr	Gly	Met	Val	Gly	Ala	Leu	Leu	Leu
				645					650					655	
Leu	Leu	Val	Val	Ala	Leu	Gly	Ile	Gly	Leu	Phe	Met	Arg	Arg	Arg	His
			660					665					670		
Ile	Val	Arg	Lys	Arg	Thr	Leu	Arg	Arg	Leu	Leu	Gln	Glu	Arg	Glu	Leu
		675					680					685			
Val	Glu	Pro	Leu	Thr	Pro	Ser	Gly	Glu	Ala	Pro	Asn	Gln	Ala	Leu	Leu
	690					695					700				
Arg	Ile	Leu	Lys	Glu	Thr	Glu	Phe	Lys	Lys	Ile	Lys	Val	Leu	Gly	Ser
705					710					715					720
Gly	Ala	Phe	Gly	Thr	Val	Tyr	Lys	Gly	Leu	Trp	Ile	Pro	Glu	Gly	Glu
				725					730					735	
Lys	Val	Lys	Ile	Pro	Val	Ala	Ile	Lys	Glu	Leu	Arg	Glu	Ala	Thr	Ser
			740					745					750		
Pro	Lys	Ala	Asn	Lys	Glu	Ile	Leu	Asp	Glu	Ala	Tyr	Val	Met	Ala	Ser
		755					760					765			
Val	Asp	Asn	Pro	His	Val	Cys	Arg	Leu	Leu	Gly	Ile	Cys	Leu	Thr	Ser
	770					775					780				
Thr	Val	Gln	Leu	Ile	Thr	Gln	Leu	Met	Pro	Phe	Gly	Cys	Leu	Leu	Asp
785					790					795					

Met Ile Met Val Lys Cys Trp Met Ile Asp Ala Asp Ser Arg Pro Lys  
 945 950 955 960  
 Phe Arg Glu Leu Ile Ile Glu Phe Ser Lys Met Ala Arg Asp Pro Gln  
 965 970 975  
 Arg Tyr Leu Val Ile Gln Gly Asp Glu Arg Met His Leu Pro Ser Pro  
 980 985 990  
 Thr Asp Ser Asn Phe Tyr Arg Ala Leu Met Asp Glu Glu Asp Met Asp  
 995 1000 1005  
 Asp Val Val Asp Ala Asp Glu Tyr Leu Ile Pro Gln Gln Gly Phe Phe  
 1010 1015 1020  
 Ser Ser Pro Ser Thr Ser Arg Thr Pro Leu Leu Ser Ser Leu Ser Ala  
 1025 1030 1035 1040  
 Thr Ser Asn Asn Ser Thr Val Ala Cys Ile Asp Arg Asn Gly Leu Gln  
 1045 1050 1055  
 Ser Cys Pro Ile Lys Glu Asp Ser Phe Leu Gln Arg Tyr Ser Ser Asp  
 1060 1065 1070  
 Pro Thr Gly Ala Leu Thr Glu Asp Ser Ile Asp Asp Thr Phe Leu Pro  
 1075 1080 1085  
 Val Pro Glu Tyr Ile Asn Gln Ser Val Pro Lys Arg Pro Ala Gly Ser  
 1090 1095 1100  
 Val Gln Asn Pro Val Tyr His Asn Gln Pro Leu Asn Pro Ala Pro Ser  
 1105 1110 1115 1120  
 Arg Asp Pro His Tyr Gln Asp Pro His Ser Thr Ala Val Gly Asn Pro  
 1125 1130 1135  
 Glu Tyr Leu Asn Thr Val Gln Pro Thr Cys Val Asn Ser Thr Phe Asp  
 1140 1145 1150  
 Ser Pro Ala His Trp Ala Gln Lys Gly Ser His Gln Ile Ser Leu Asp  
 1155 1160 1165  
 Asn Pro Asp Tyr Gln Gln Asp Phe Phe Pro Lys Glu Ala Lys Pro Asn  
 1170 1175 1180  
 Gly Ile Phe Lys Gly Ser Thr Ala Glu Asn Ala Glu Tyr Leu Arg Val  
 1185 1190 1195 1200  
 Ala Pro Gln Ser Ser Glu Phe Ile Gly Ala  
 1205 1210

<210> 8  
 <211> 379  
 <212> PRT  
 <213> Homo Sapiens

<400> 8  
 Met Ala Ala Ala Ala Gln Gly Gly Gly Gly Glu Pro Arg Arg  
 1 5 10 15  
 Thr Glu Gly Val Gly Pro Gly Val Pro Gly Glu Val Glu Met Val Lys  
 20 25 30  
 Gly Gln Pro Phe Asp Val Gly Pro Arg Tyr Thr Gln Leu Gln Tyr Ile  
 35 40 45  
 Gly Glu Gly Ala Tyr Gly Met Val Ser Ser Ala Tyr Asp His Val Arg  
 50 55 60  
 Lys Thr Arg Val Ala Ile Lys Lys Ile Ser Pro Phe Glu His Gln Thr  
 65 70 75 80  
 Tyr Cys Gln Arg Thr Leu Arg Glu Ile Gln Ile Leu Leu Arg Phe Arg  
 85 90 95  
 His Glu Asn Val Ile Gly Ile Arg Asp Ile Leu Arg Ala Ser Thr Leu  
 100 105 110  
 Glu Ala Met Arg Asp Val Tyr Ile Val Gln Asp Leu Met Glu Thr Asp  
 115 120 125  
 Leu Tyr Lys Leu Leu Lys Ser Gln Gln Leu Ser Asn Asp His Ile Cys  
 130 135 140  
 Tyr Phe Leu Tyr Gln Ile Leu Arg Gly Leu Lys Tyr Ile His Ser Ala  
 145 150 155 160  
 Asn Val Leu His Arg Asp Leu Lys Pro Ser Asn Leu Leu Ile Asn Thr  
 165 170 175

Thr Cys Asp Leu Lys Ile Cys Asp Phe Gly Leu Ala Arg Ile Ala Asp  
 180 185 190  
 Pro Glu His Asp His Thr Gly Phe Leu Thr Glu Tyr Val Ala Thr Arg  
 195 200 205  
 Trp Tyr Arg Ala Pro Glu Ile Met Leu Asn Ser Lys Gly Tyr Thr Lys  
 210 215 220  
 Ser Ile Asp Ile Trp Ser Val Gly Cys Ile Leu Ala Glu Met Leu Ser  
 225 230 235 240  
 Asn Arg Pro Ile Phe Pro Gly Lys His Tyr Leu Asp Gln Leu Asn His  
 245 250 255  
 Ile Leu Gly Ile Leu Gly Ser Pro Ser Gln Glu Asp Leu Asn Cys Ile  
 260 265 270  
 Ile Asn Met Lys Ala Arg Asn Tyr Leu Gln Ser Leu Pro Ser Lys Thr  
 275 280 285  
 Lys Val Ala Trp Ala Lys Leu Phe Pro Lys Ser Asp Ser Lys Ala Leu  
 290 295 300  
 Asp Leu Leu Asp Arg Met Leu Thr Phe Asn Pro Asn Lys Arg Ile Thr  
 305 310 315 320  
 Val Glu Glu Ala Leu Ala His Pro Tyr Leu Glu Gln Tyr Tyr Asp Pro  
 325 330 335  
 Thr Asp Glu Pro Val Ala Glu Glu Pro Phe Thr Phe Ala Met Glu Leu  
 340 345 350  
 Asp Asp Leu Pro Lys Glu Arg Leu Lys Glu Leu Ile Phe Gln Glu Thr  
 355 360 365  
 Ala Arg Phe Gln Pro Gly Val Leu Glu Ala Pro  
 370 375

<210> 9

<211> 3256

<212> PRT

<213> Homo Sapiens

<400> 9

Met Trp Pro Thr Arg Arg Leu Val Thr Ile Lys Arg Ser Gly Val Asp  
 1 5 10 15  
 Gly Pro His Phe Pro Leu Ser Leu Ser Thr Cys Leu Phe Gly Arg Gly  
 20 25 30  
 Ile Glu Cys Asp Ile Arg Ile Gln Leu Pro Val Val Ser Lys Gln His  
 35 40 45  
 Cys Lys Ile Glu Ile His Glu Gln Glu Ala Ile Leu His Asn Phe Ser  
 50 55 60  
 Ser Thr Asn Pro Thr Gln Val Asn Gly Ser Val Ile Asp Glu Pro Val  
 65 70 75 80  
 Arg Leu Lys His Gly Asp Val Ile Thr Ile Ile Asp Arg Ser Phe Arg  
 85 90 95  
 Tyr Glu Asn Glu Ser Leu Gln Asn Gly Arg Lys Ser Thr Glu Phe Pro  
 100 105 110  
 Arg Lys Ile Arg Glu Gln Glu Pro Ala Arg Arg Val Ser Arg Ser Ser  
 115 120 125  
 Phe Ser Ser Asp Pro Asp Glu Lys Ala Gln Asp Ser Lys Ala Tyr Ser  
 130 135 140  
 Lys Ile Thr Glu Gly Lys Val Ser Gly Asn Pro Gln Val His Ile Lys  
 145 150 155 160  
 Asn Val Lys Glu Asp Ser Thr Ala Asp Asp Ser Lys Asp Ser Val Ala  
 165 170 175  
 Gln Gly Thr Thr Asn Val His Ser Ser Glu His Ala Gly Arg Asn Gly  
 180 185 190  
 Arg Asn Ala Ala Asp Pro Ile Ser Gly Asp Phe Lys Glu Ile Ser Ser  
 195 200 205  
 Val Lys Leu Val Ser Arg Tyr Gly Glu Leu Lys Ser Val Pro Thr Thr  
 210 215 220  
 Gln Cys Leu Asp Asn Ser Lys Lys Asn Glu Ser Pro Phe Trp Lys Leu  
 225 230 235 240

Tyr	Glu	Ser	Val	Lys	Lys	Glu	Leu	Asp	Val	Lys	Ser	Gln	Lys	Glu	Asn	
				245					250						255	
Val	Leu	Gln	Tyr	Cys	Arg	Lys	Ser	Gly	Leu	Gln	Thr	Asp	Tyr	Ala	Thr	
			260					265					270			
Glu	Lys	Glu	Ser	Ala	Asp	Gly	Leu	Gln	Gly	Glu	Thr	Gln	Leu	Leu	Val	
		275					280					285				
Ser	Arg	Lys	Ser	Arg	Pro	Lys	Ser	Gly	Gly	Ser	Gly	His	Ala	Val	Ala	
	290					295					300					
Glu	Pro	Ala	Ser	Pro	Glu	Gln	Glu	Leu	Asp	Gln	Asn	Lys	Gly	Lys	Gly	
305					310					315					320	
Arg	Asp	Val	Glu	Ser	Val	Gln	Thr	Pro	Ser	Lys	Ala	Val	Gly	Ala	Ser	
			325						330					335		
Phe	Pro	Leu	Tyr	Glu	Pro	Ala	Lys	Met	Lys	Thr	Pro	Val	Gln	Tyr	Ser	
		340						345					350			
Gln	Gln	Gln	Asn	Ser	Pro	Gln	Lys	His	Lys	Asn	Lys	Asp	Leu	Tyr	Thr	
		355				360						365				
Thr	Gly	Arg	Arg	Glu	Ser	Val	Asn	Leu	Gly	Lys	Ser	Glu	Gly	Phe	Lys	
	370					375					380					
Ala	Gly	Asp	Lys	Thr	Leu	Thr	Pro	Arg	Lys	Leu	Ser	Thr	Arg	Asn	Arg	
385					390					395					400	
Thr	Pro	Ala	Lys	Val	Glu	Asp	Ala	Ala	Asp	Ser	Ala	Thr	Lys	Pro	Glu	
			405						410					415		
Asn	Leu	Ser	Ser	Lys	Thr	Arg	Gly	Ser	Ile	Pro	Thr	Asp	Val	Glu	Val	
		420						425					430			
Leu	Pro	Thr	Glu	Thr	Glu	Ile	His	Asn	Glu	Pro	Phe	Leu	Thr	Leu	Trp	
	435					440						445				
Leu	Thr	Gln	Val	Glu	Arg	Lys	Ile	Gln	Lys	Asp	Ser	Leu	Ser	Lys	Pro	
	450					455					460					
Glu	Lys	Leu	Gly	Thr	Thr	Ala	Gly	Gln	Met	Cys	Ser	Gly	Leu	Pro	Gly	
465					470					475					480	
Leu	Ser	Ser	Val	Asp	Ile	Asn	Asn	Phe	Gly	Asp	Ser	Ile	Asn	Glu	Ser	
			485						490					495		
Glu	Gly	Ile	Pro	Leu	Lys	Arg	Arg	Arg	Val	Ser	Phe	Gly	Gly	His	Leu	
		500						505					510			
Arg	Pro	Glu	Leu	Phe	Asp	Glu	Asn	Leu	Pro	Pro	Asn	Thr	Pro	Leu	Lys	
		515					520					525				
Arg	Gly	Glu	Ala	Pro	Thr	Lys	Arg	Lys	Ser	Leu	Val	Met	His	Thr	Pro	
	530					535						540				
Pro	Val	Leu	Lys	Lys	Ile	Ile	Lys	Glu	Gln	Pro	Gln	Pro	Ser	Gly	Lys	
545					550					555					560	
Gln	Glu	Ser	Gly	Ser	Glu	Ile	His	Val	Glu	Val	Lys	Ala	Gln	Ser	Leu	
			565						570					575		
Val	Ile	Ser	Pro	Pro	Ala	Pro	Ser	Pro	Arg	Lys	Thr	Pro	Val	Ala	Ser	
		580						585					590			
Asp	Gln	Arg	Arg	Arg	Ser	Cys	Lys	Thr	Ala	Pro	Ala	Ser	Ser	Ser	Lys	
	595					600						605				
Ser	Gln	Thr	Glu	Val	Pro	Lys	Arg	Gly	Gly	Glu	Arg	Val	Ala	Thr	Cys	
	610					615						620				
Leu	Gln	Lys	Arg	Val	Ser	Ile	Ser	Arg	Ser	Gln	His	Asp	Ile	Leu	Gln	
625					630					635					640	
Met	Ile	Cys	Ser	Lys	Arg	Arg	Ser	Gly	Ala	Ser	Glu	Ala	Asn	Leu	Ile	
			645						650					655		
Val	Ala	Lys	Ser	Trp	Ala	Asp	Val	Val	Lys	Leu	Gly	Ala	Lys	Gln	Thr	
		660						665					670			
Gln	Thr	Lys	Val	Ile	Lys	His	Gly	Pro	Gln	Arg	Ser	Met	Asn	Lys	Arg	
	675					680						685				
Gln	Arg	Arg	Pro	Ala	Thr	Pro	Lys	Lys	Pro	Val	Gly	Glu	Val	His	Ser	
	690					695					700					
Gln	Phe	Ser	Thr	Gly	His	Ala	Asn	Ser	Pro	Cys	Thr	Ile	Ile	Ile	Gly	
705					710					715					720	
Lys	Ala	His	Thr	Glu	Lys	Val	His	Val	Pro	Ala	Arg	Pro	Tyr	Arg	Val	
			725						730					735		
Leu	Asn	Asn	Phe	Ile	Ser	Asn	Gln	Lys	Met	Asp	Phe	Lys	Glu	Asp	Leu	



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Ile	Pro	Cys	Asp	Ser	Pro	Gln	Ser	Asp	Pro	Val	Asp	Thr	Pro	Thr	Ser	1250	1255	1260
Thr	Lys	Gln	Arg	Pro	Lys	Arg	Ser	Ile	Arg	Lys	Ala	Asp	Val	Glu	Gly	1265	1270	1275
Glu	Leu	Leu	Ala	Cys	Arg	Asn	Leu	Met	Pro	Ser	Ala	Gly	Lys	Ala	Met	1285	1290	1295
His	Thr	Pro	Lys	Pro	Ser	Val	Gly	Glu	Glu	Lys	Asp	Ile	Ile	Ile	Phe	1300	1305	1310
Val	Gly	Thr	Pro	Val	Gln	Lys	Leu	Asp	Leu	Thr	Glu	Asn	Leu	Thr	Gly	1315	1320	1325
Ser	Lys	Arg	Arg	Pro	Gln	Thr	Pro	Lys	Glu	Glu	Ala	Gln	Ala	Leu	Glu	1330	1335	1340
Asp	Leu	Thr	Gly	Phe	Lys	Glu	Leu	Phe	Gln	Thr	Pro	Gly	His	Thr	Glu	1345	1350	1355
Glu	Ala	Val	Ala	Ala	Gly	Lys	Thr	Thr	Lys	Met	Pro	Cys	Glu	Ser	Ser	1365	1370	1375
Pro	Pro	Glu	Ser	Ala	Asp	Thr	Pro	Thr	Ser	Thr	Arg	Arg	Gln	Pro	Lys	1380	1385	1390
Thr	Pro	Leu	Glu	Lys	Arg	Asp	Val	Gln	Lys	Glu	Leu	Ser	Ala	Leu	Lys	1395	1400	1405
Lys	Leu	Thr	Gln	Thr	Ser	Gly	Glu	Thr	Thr	His	Thr	Asp	Lys	Val	Pro	1410	1415	1420
Gly	Gly	Glu	Asp	Lys	Ser	Ile	Asn	Ala	Phe	Arg	Glu	Thr	Ala	Lys	Gln	1425	1430	1435
Lys	Leu	Asp	Pro	Ala	Ala	Ser	Val	Thr	Gly	Ser	Lys	Arg	His	Pro	Lys	1445	1450	1455
Thr	Lys	Glu	Lys	Ala	Gln	Pro	Leu	Glu	Asp	Leu	Ala	Gly	Trp	Lys	Glu	1460	1465	1470
Leu	Phe	Gln	Thr	Pro	Val	Cys	Thr	Asp	Lys	Pro	Thr	Thr	His	Glu	Lys	1475	1480	1485
Thr	Thr	Lys	Ile	Ala	Cys	Arg	Ser	Gln	Pro	Asp	Pro	Val	Asp	Thr	Pro	1490	1495	1500
Thr	Ser	Ser	Lys	Pro	Gln	Ser	Lys	Arg	Ser	Leu	Arg	Lys	Val	Asp	Val	1505	1510	1515
Glu	Glu	Glu	Phe	Phe	Ala	Leu	Arg	Lys	Arg	Thr	Pro	Ser	Ala	Gly	Lys	1525	1530	1535
Ala	Met	His	Thr	Pro	Lys	Pro	Ala	Val	Ser	Gly	Glu	Lys	Asn	Ile	Tyr	1540	1545	1550
Ala	Phe	Met	Gly	Thr	Pro	Val	Gln	Lys	Leu	Asp	Leu	Thr	Glu	Asn	Leu	1555	1560	1565
Thr	Gly	Ser	Lys	Arg	Arg	Leu	Gln	Thr	Pro	Lys	Glu	Lys	Ala	Gln	Ala	1570	1575	1580
Leu	Glu	Asp	Leu	Ala	Gly	Phe	Lys	Glu	Leu	Phe	Gln	Thr	Arg	Gly	His	1585	1590	1595
Thr	Glu	Glu	Ser	Met	Thr	Asn	Asp	Lys	Thr	Ala	Lys	Val	Ala	Cys	Lys	1605	1610	1615
Ser	Ser	Gln	Pro	Asp	Leu	Asp	Lys	Asn	Pro	Ala	Ser	Ser	Lys	Arg	Arg	1620	1625	1630
Leu	Lys	Thr	Ser	Leu	Gly	Lys	Val	Gly	Val	Lys	Glu	Glu	Leu	Leu	Ala	1635	1640	1645
Val	Gly	Lys	Leu	Thr	Gln	Thr	Ser	Gly	Glu	Thr	Thr	His	Thr	His	Thr	1650	1655	1660
Glu	Pro	Thr	Gly	Asp	Gly	Lys	Ser	Met	Lys	Ala	Phe	Met	Glu	Ser	Pro	1665	1670	1675
Lys	Gln	Ile	Leu	Asp	Ser	Ala	Ala	Ser	Leu	Thr	Gly	Ser	Lys	Arg	Gln	1685	1690	1695
Leu	Arg	Thr	Pro	Lys	Gly	Lys	Ser	Glu	Val	Pro	Glu	Asp	Leu	Ala	Gly	1700	1705	1710
Phe	Ile	Glu	Leu	Phe	Gln	Thr	Pro	Ser	His	Thr	Lys	Glu	Ser	Met	Thr	1715	1720	1725
Asn	Glu	Lys	Thr	Thr	Lys	Val	Ser	Tyr	Arg	Ala	Ser	Gln	Pro	Asp	Leu	1730	1735	1740
Val	Asp	Thr	Pro	Thr	Ser	Ser	Lys	Pro	Gln	Pro	Lys	Arg	Ser	Leu	Arg			

1745	1750	1755	1760
Lys Ala Asp Thr Glu Glu Phe Leu Ala Phe Arg Lys Gln Thr Pro			
1765	1770	1775	
Ser Ala Gly Lys Ala Met His Thr Pro Lys Pro Ala Val Gly Glu Glu			
1780	1785	1790	
Lys Asp Ile Asn Thr Phe Leu Gly Thr Pro Val Gln Lys Leu Asp Gln			
1795	1800	1805	
Pro Gly Asn Leu Pro Gly Ser Asn Arg Arg Leu Gln Thr Arg Lys Glu			
1810	1815	1820	
Lys Ala Gln Ala Leu Glu Leu Thr Gly Phe Arg Glu Leu Phe Gln			
1825	1830	1835	1840
Thr Pro Cys Thr Asp Asn Pro Thr Ala Asp Glu Lys Thr Thr Lys Lys			
1845	1850	1855	
Ile Leu Cys Lys Ser Pro Gln Ser Asp Pro Ala Asp Thr Pro Thr Asn			
1860	1865	1870	
Thr Lys Gln Arg Pro Lys Arg Ser Leu Lys Lys Ala Asp Val Glu Glu			
1875	1880	1885	
Glu Phe Leu Ala Phe Arg Lys Leu Thr Pro Ser Ala Gly Lys Ala Met			
1890	1895	1900	
His Thr Pro Lys Ala Ala Val Gly Glu Glu Lys Asp Ile Asn Thr Phe			
1905	1910	1915	1920
Val Gly Thr Pro Val Glu Lys Leu Asp Leu Leu Gly Asn Leu Pro Gly			
1925	1930	1935	
Ser Lys Arg Arg Pro Gln Thr Pro Lys Glu Lys Ala Lys Ala Leu Glu			
1940	1945	1950	
Asp Leu Ala Gly Phe Lys Glu Leu Phe Gln Thr Pro Gly His Thr Glu			
1955	1960	1965	
Glu Ser Met Thr Asp Asp Lys Ile Thr Glu Val Ser Cys Lys Ser Pro			
1970	1975	1980	
Gln Pro Asp Pro Val Lys Thr Pro Thr Ser Ser Lys Gln Arg Leu Lys			
1985	1990	1995	2000
Ile Ser Leu Gly Lys Val Gly Val Lys Glu Glu Val Leu Pro Val Gly			
2005	2010	2015	
Lys Leu Thr Gln Thr Ser Gly Lys Thr Thr Gln Thr His Arg Glu Thr			
2020	2025	2030	
Ala Gly Asp Gly Lys Ser Ile Lys Ala Phe Lys Glu Ser Ala Lys Gln			
2035	2040	2045	
Met Leu Asp Pro Ala Asn Tyr Gly Thr Gly Met Glu Arg Trp Pro Arg			
2050	2055	2060	
Thr Pro Lys Glu Glu Ala Gln Ser Leu Glu Asp Leu Ala Gly Phe Lys			
2065	2070	2075	2080
Glu Leu Phe Gln Thr Pro Asp His Thr Glu Glu Ser Thr Thr Asp Asp			
2085	2090	2095	
Lys Thr Thr Lys Ile Ala Cys Lys Ser Pro Pro Pro Glu Ser Met Asp			
2100	2105	2110	
Thr Pro Thr Ser Thr Arg Arg Arg Pro Lys Thr Pro Leu Gly Lys Arg			
2115	2120	2125	
Asp Ile Val Glu Glu Leu Ser Ala Leu Lys Gln Leu Thr Gln Thr Thr			
2130	2135	2140	
His Thr Asp Lys Val Pro Gly Asp Glu Asp Lys Gly Ile Asn Val Phe			
2145	2150	2155	2160
Arg Glu Thr Ala Lys Gln Lys Leu Asp Pro Ala Ala Ser Val Thr Gly			
2165	2170	2175	
Ser Lys Arg Gln Pro Arg Thr Pro Lys Gly Lys Ala Gln Pro Leu Glu			
2180	2185	2190	
Asp Leu Ala Gly Leu Lys Glu Leu Phe Gln Thr Pro Val Cys Thr Asp			
2195	2200	2205	
Lys Pro Thr Thr His Glu Lys Thr Thr Lys Ile Ala Cys Arg Ser Pro			
2210	2215	2220	
Gln Pro Asp Pro Val Gly Thr Pro Thr Ile Phe Lys Pro Gln Ser Lys			
2225	2230	2235	2240
Arg Ser Leu Arg Lys Ala Asp Val Glu Glu Glu Ser Leu Ala Leu Arg			
2245	2250	2255	

Lys Arg Thr	Pro Ser Val Gly	Lys Ala Met Asp Thr	Pro Lys Pro Ala
	2260	2265	2270
Gly Gly Asp	Glu Lys Asp Met	Lys Ala Phe Met Gly Thr	Pro Val Gln
	2275	2280	2285
Lys Leu Asp	Leu Pro Gly Asn Leu	Pro Gly Ser Lys Arg Trp	Pro Gln
	2290	2295	2300
Thr Pro Lys	Glu Lys Ala Gln Ala	Leu Glu Asp Leu Ala Gly Phe	Lys
2305	2310	2315	2320
Glu Leu Phe	Gln Thr Pro Gly Thr	Asp Lys Pro Thr Thr	Asp Glu Lys
	2325	2330	2335
Thr Thr Lys	Ile Ala Cys Lys Ser	Pro Gln Pro Asp Pro Val	Asp Thr
	2340	2345	2350
Pro Ala Ser	Thr Lys Gln Arg Pro	Lys Arg Asn Leu Arg Lys	Ala Asp
	2355	2360	2365
Val Glu Glu	Glu Phe Leu Ala Leu	Arg Lys Arg Thr Pro	Ser Ala Gly
	2370	2375	2380
Lys Ala Met	Asp Thr Pro Lys	Pro Ala Val Ser Asp	Glu Lys Asn Ile
2385	2390	2395	2400
Asn Thr Phe	Val Glu Thr Pro Val	Gln Lys Leu Asp Leu Leu	Gly Asn
	2405	2410	2415
Leu Pro Gly	Ser Lys Arg Gln Pro	Gln Thr Pro Lys Glu Lys	Ala Glu
	2420	2425	2430
Ala Leu Glu	Asp Leu Val Gly Phe	Lys Glu Leu Phe Gln Thr	Pro Gly
	2435	2440	2445
His Thr Glu	Glu Ser Met Thr Asp	Asp Lys Ile Thr Glu Val	Ser Cys
	2450	2455	2460
Lys Ser Pro	Gln Pro Glu Ser Phe	Lys Thr Ser Arg Ser Ser	Lys Gln
2465	2470	2475	2480
Arg Leu Lys	Ile Pro Leu Val Lys	Val Asp Met Lys Glu Glu	Pro Leu
	2485	2490	2495
Ala Val Ser	Lys Leu Thr Arg Thr	Ser Gly Glu Thr Thr	Gln Thr His
	2500	2505	2510
Thr Glu Pro	Thr Gly Asp Ser Lys	Ser Ile Lys Ala Phe Lys	Glu Ser
	2515	2520	2525
Pro Lys Gln	Ile Leu Asp Pro Ala	Ala Ser Val Thr Gly Ser	Arg Arg
	2530	2535	2540
Gln Leu Arg	Thr Arg Lys Glu Lys	Ala Arg Ala Leu Glu Asp	Leu Val
2545	2550	2555	2560
Asp Phe Lys	Glu Leu Phe Ser Ala	Pro Gly His Thr Glu Glu	Ser Met
	2565	2570	2575
Thr Ile Asp	Lys Asn Thr Lys Ile	Pro Cys Lys Ser Pro Pro	Pro Glu
	2580	2585	2590
Leu Thr Asp	Thr Ala Thr Ser Thr	Lys Arg Cys Pro Lys Thr	Arg Pro
	2595	2600	2605
Arg Lys Glu	Val Lys Glu Glu Leu	Ser Ala Val Glu Arg Leu	Thr Gln
	2610	2615	2620
Thr Ser Gly	Gln Ser Thr His Thr	His Lys Glu Pro Ala Ser	Gly Asp
2625	2630	2635	2640
Glu Gly Ile	Lys Val Leu Lys Gln	Arg Ala Lys Lys Lys Pro	Asn Pro
	2645	2650	2655
Val Glu Glu	Glu Pro Ser Arg Arg	Arg Pro Arg Ala Pro Lys	Glu Lys
	2660	2665	2670
Ala Gln Pro	Leu Glu Asp Leu Ala	Gly Phe Thr Glu Leu Ser	Glu Thr
	2675	2680	2685
Ser Gly His	Thr Gln Glu Ser Leu	Thr Ala Gly Lys Ala Thr	Lys Ile
	2690	2695	2700
Pro Cys Glu	Ser Pro Pro Leu Glu	Val Val Asp Thr Thr Ala	Ser Thr
2705	2710	2715	2720
Lys Arg His	Leu Arg Thr Arg Val	Gln Lys Val Gln Val Lys	Glu Glu
	2725	2730	2735
Pro Ser Ala	Val Lys Phe Thr Gln	Thr Ser Gly Glu Thr Thr	Asp Ala
	2740	2745	2750
Asp Lys Glu	Pro Ala Gly Glu Asp	Lys Gly Ile Lys Ala Leu	Lys Glu

2755	2760	2765
Ser Ala Lys Gln Thr Pro	Ala Pro Ala Ala Ser	Val Thr Gly Ser Arg
2770	2775	2780
Arg Arg Pro Arg Ala Pro	Arg Glu Ser Ala Gln	Ile Glu Asp Leu
2785	2790	2795
Ala Gly Phe Lys Asp Pro	Ala Ala Gly His Thr	Glu Glu Ser Met Thr
2805	2810	2815
Asp Asp Lys Thr Thr Lys	Ile Pro Cys Lys Ser	Ser Pro Glu Leu Glu
2820	2825	2830
Asp Thr Ala Thr Ser Ser	Lys Arg Pro Arg Thr	Arg Ala Gln Lys
2835	2840	2845
Val Glu Val Lys Glu Glu	Leu Leu Ala Val Gly	Lys Leu Thr Gln Thr
2850	2855	2860
Ser Gly Glu Thr Thr His	Thr Asp Lys Glu Pro	Val Gly Glu Gly Lys
2865	2870	2875
Gly Thr Lys Ala Phe Lys	Gln Pro Ala Lys Arg	Asn Val Asp Ala Glu
2885	2890	2895
Asp Val Ile Gly Ser Arg	Arg Gln Pro Arg Ala	Pro Lys Glu Lys Ala
2900	2905	2910
Gln Pro Leu Glu Asp Leu	Ala Ser Phe Gln Glu	Leu Ser Gln Thr Pro
2915	2920	2925
Gly His Thr Glu Glu Leu	Ala Asn Gly Ala Ala	Asp Ser Phe Thr Ser
2930	2935	2940
Ala Pro Lys Gln Thr Pro	Asp Ser Gly Lys Pro	Leu Lys Ile Ser Arg
2945	2950	2955
Arg Val Leu Arg Ala Pro	Lys Val Glu Pro Val	Gly Asp Val Val Ser
2965	2970	2975
Thr Arg Asp Pro Val Lys	Ser Gln Ser Lys Ser	Asn Thr Ser Leu Pro
2980	2985	2990
Pro Leu Pro Phe Lys Arg	Gly Gly Lys Asp Gly	Ser Val Thr Gly
2995	3000	3005
Thr Lys Arg Leu Arg Cys	Met Pro Ala Pro Glu	Glu Ile Val Glu Glu
3010	3015	3020
Leu Pro Ala Ser Lys Lys	Gln Arg Val Ala Pro	Arg Ala Arg Gly Lys
3025	3030	3035
Ser Ser Glu Pro Val Val	Ile Met Lys Arg Ser	Leu Arg Thr Ser Ala
3045	3050	3055
Lys Arg Ile Glu Pro Ala	Glu Glu Leu Asn Ser	Asn Asp Met Lys Thr
3060	3065	3070
Asn Lys Glu Glu His Lys	Leu Gln Asp Ser Val	Pro Glu Asn Lys Gly
3075	3080	3085
Ile Ser Leu Arg Ser Arg	Arg Gln Asp Lys Thr	Glu Ala Glu Gln Gln
3090	3095	3100
Ile Thr Glu Val Phe Val	Leu Ala Glu Arg Ile	Glu Ile Asn Arg Asn
3105	3110	3115
Glu Lys Lys Pro Met Lys	Thr Ser Pro Glu Met	Asp Ile Gln Asn Pro
3125	3130	3135
Asp Asp Gly Ala Arg Lys	Pro Ile Pro Arg Asp	Lys Val Thr Glu Asn
3140	3145	3150
Lys Arg Cys Leu Arg Ser	Ala Arg Gln Asn Glu	Ser Ser Gln Pro Lys
3155	3160	3165
Val Ala Glu Glu Ser Gly	Gly Gln Lys Ser Ala	Lys Val Leu Met Gln
3170	3175	3180
Asn Gln Lys Gly Lys Gly	Glu Ala Gly Asn Ser	Asp Ser Met Cys Leu
3185	3190	3195
Arg Ser Arg Lys Thr Lys	Ser Gln Pro Ala Ala	Ser Thr Leu Glu Ser
3205	3210	3215
Lys Ser Val Gln Arg Val	Thr Arg Ser Val Lys	Arg Cys Ala Glu Asn
3220	3225	3230
Pro Lys Lys Ala Glu Asp	Asn Val Cys Val Lys	Lys Ile Thr Thr Arg
3235	3240	3245
Ser His Arg Asp Ser Glu	Asp Ile	
3250	3255	

<210> 10  
 <211> 136  
 <212> PRT  
 <213> Homo Sapiens

<400> 10  
 Met Ala Arg Thr Lys Gln Thr Ala Arg Lys Ser Thr Gly Gly Lys Ala  
 1 5 10 15  
 Pro Arg Lys Gln Leu Ala Thr Lys Ala Ala Arg Lys Ser Ala Pro Ser  
 20 25 30  
 Thr Gly Gly Val Lys Lys Pro His Arg Tyr Arg Pro Gly Thr Val Ala  
 35 40 45  
 Leu Arg Glu Ile Arg Arg Tyr Gln Lys Ser Thr Glu Leu Leu Ile Arg  
 50 55 60  
 Lys Leu Pro Phe Gln Arg Leu Val Arg Glu Ile Ala Gln Asp Phe Lys  
 65 70 75 80  
 Thr Asp Leu Arg Phe Gln Ser Ala Ala Ile Gly Ala Leu Gln Glu Ala  
 85 90 95  
 Ser Glu Ala Tyr Leu Val Gly Leu Phe Glu Asp Thr Asn Leu Cys Ala  
 100 105 110  
 Ile His Ala Lys Arg Val Thr Ile Met Pro Lys Asp Ile Gln Leu Ala  
 115 120 125  
 Arg Arg Ile Arg Gly Glu Arg Ala  
 130 135

<210> 11  
 <211> 277  
 <212> PRT  
 <213> Homo Sapiens

<400> 11  
 Met Glu Asn Thr Glu Asn Ser Val Asp Ser Lys Ser Ile Lys Asn Leu  
 1 5 10 15  
 Glu Pro Lys Ile Ile His Gly Ser Glu Ser Met Asp Ser Gly Ile Ser  
 20 25 30  
 Leu Asp Asn Ser Tyr Lys Met Asp Tyr Pro Glu Met Gly Leu Cys Ile  
 35 40 45  
 Ile Ile Asn Asn Lys Asn Phe His Lys Ser Thr Gly Met Thr Ser Arg  
 50 55 60  
 Ser Gly Thr Asp Val Asp Ala Ala Asn Leu Arg Glu Thr Phe Arg Asn  
 65 70 75 80  
 Leu Lys Tyr Glu Val Arg Asn Lys Asn Asp Leu Thr Arg Glu Glu Ile  
 85 90 95  
 Val Glu Leu Met Arg Asp Val Ser Lys Glu Asp His Ser Lys Arg Ser  
 100 105 110  
 Ser Phe Val Cys Val Leu Leu Ser His Gly Glu Glu Gly Ile Ile Phe  
 115 120 125  
 Gly Thr Asn Gly Pro Val Asp Leu Lys Lys Ile Thr Asn Phe Phe Arg  
 130 135 140  
 Gly Asp Arg Cys Arg Ser Leu Thr Gly Lys Pro Lys Leu Phe Ile Ile  
 145 150 155 160  
 Gln Ala Cys Arg Gly Thr Glu Leu Asp Cys Gly Ile Glu Thr Asp Ser  
 165 170 175  
 Gly Val Asp Asp Asp Met Ala Cys His Lys Ile Pro Val Asp Ala Asp  
 180 185 190  
 Phe Leu Tyr Ala Tyr Ser Thr Ala Pro Gly Tyr Tyr Ser Trp Arg Asn  
 195 200 205  
 Ser Lys Asp Gly Ser Trp Phe Ile Gln Ser Leu Cys Ala Met Leu Lys  
 210 215 220  
 Gln Tyr Ala Asp Lys Leu Glu Phe Met His Ile Leu Thr Arg Val Asn  
 225 230 235 240  
 Arg Lys Val Ala Thr Glu Phe Glu Ser Phe Ser Phe Asp Ala Thr Phe

				245					250					255			
His	Ala	Lys	Lys	Gln	Ile	Pro	Cys	Ile	Val	Ser	Met	Leu	Thr	Lys	Glu		
			260					265						270			
Leu	Tyr	Phe	Tyr	His													
		275															